DISCUSSION OF THE AMENDMENT

Claim 1 has been amended by limiting the diisocyanate component and polymeric polyol component of the polyurethane to specific compounds, as supported in the specification at page 32, lines 17-22 and the paragraph bridging pages 33 and 34.

No new matter is believed to have been added by the above amendment. Claims 1, 4, 6-12 and 17-23 remain active in the application; Claims 13-15 stand withdrawn from consideration, but are subject to rejoinder.

REMARKS

The rejections under 35 U.S.C. § 103(a) of:

Claims 1, 2, 4, 6-8, and 17-23 as unpatentable over US 6,299,977 (Takeyama et al) in view of JP 09-59881 (Ashida et al), US 4,914,764 (Mast et al), and US 3,419,533 (Dieterich),

and Claims 9-12 as unpatentable over Takeyama et al in view of Ashida et al, Mast et al, and Dieterich, and further in view of US 4,525,169 (Higuchi et al),

are respectfully traversed.

As recited in above-amended Claim 1, the present invention is a suede artificial leather comprising a three-dimensional entangled body comprising a superfine fiber having a fineness of 0.2 dtex or less and an elastomeric polymer A impregnated in the three-dimensional entangled body, the suede artificial leather satisfying the following requirements (1) to (4):

(1) a pigment A in an amount of 0.1 to 8% by mass is embedded in the superfine fiber, wherein the pigment A is at least one pigment selected from the group consisting of an organic pigment having an average particle size of 0.01 to 0.3 μm and carbon black having an average particle size of 0.01 to 0.3 μm;

(2) a pigment B in an amount of 1 to 20% by mass is embedded in the elastomeric polymer A, wherein the pigment B is at least one pigment selected from the group consisting of an organic pigment having an average particle size of 0.05 to 0.6 μm and carbon black having an average particle size of 0.05 to 0.6 μm, or the pigment B is a pigment particle having an average particle size of 0.05 to 0.6 μm which comprises a mixture of an organic pigment with carbon black or at least one inorganic pigment, wherein the elastomeric polymer A is in a form of a transparent film which is formed using a water-dispersed polyurethane substantially free from organic solvents, the polyurethane having a hot water

swelling rate of 20% or less when measured immediately after immersion to a hot water of 130°C;

wherein a diisocyanate component of the polyurethane is an aliphatic diisocyanate or alicyclic diisocyanate which is selected from the group consisting of hexamethylene diisocyanate, isophorone diisocyanate, norbornene diisocyanate and 4,4'-dicyclohexylmethane diisocyanate; and

wherein a polymeric polyol component of the polyurethane is selected from the group consisting of polyethylene glycol, polypropylene glycol, polytetramethylene glycol, poly(methyltetramethylene glycol), polybutylene adipate diol, polybutylene sebacate diol, polyhexamethylene adipate diol, poly(3-methyl-1,5-pentylene adipate) diol, poly(3-methyl-1,5-pentylene sebacate) diol, polycaprolactone diol, polyhexamethylene carbonate diol, and poly(3-methyl-1,5-pentylene carbonate) diol;

(3) the ratio of the elastomeric polymer A to the three-dimensional entangled body is 15:85 to 60:40 by mass; and

(4) an average raised nap length of the superfine fiber present on the surface of the suede artificial leather is 10 to 200 μm.

The Examiner has previously relied on all the above-listed prior art except Dieterich. Dieterich relates to polyurethane plastics which contain sulfonium groups, and which are disclosed as having many different uses, including for impregnating leather (column 6, line 67). Dieterich's sulfonium group-containing polyurethane plastics have been polyternated with monofunctional alkylating agents and are otherwise predominantly linear, elastic, non-sticky and water-insoluble materials (column 2, lines 14-19). The Examiner relies on Example 3 therein, and finds that it "demonstrates how the water-dispersed polyurethane forms a transparent film substantially free from organic solvents." The Examiner further holds that it would have been obvious to modify the invention of Takeyama et al with the

polyurethane of Dieterich "with a motivation of using a polyurethane that is elastic, non-sticky and water-insoluble" relying on the above-discussed disclosure in Dieterich.

In reply, without the present disclosure as a guide, it is not clear why one skilled in the art would combine Dieterich with the other-applied prior art, but even if combined, the result would still not be the presently-claimed invention, because of the many other differences between the present invention and the other-applied prior art, previously discussed. In addition, Dieterich's polyurethane plastics are prepared by reacting an active hydrogen containing compound, preferably polyhydroxy compounds (column 2, line 44ff) with an organic polyisocyanate, wherein at least one of the active hydrogen containing compound and the organic polyisocyanate contains sulfide sulfur atoms (column 1, lines 13-16 and column 2, lines 3-7). However, in above-amended Claim 1, the polyurethane is recited such that sulfonium groups are necessarily excluded.

Applicants submit that the invention herein, as previously claimed prior to the above-discussed amendment, is patentable over the applied prior art for reasons discussed in previous responses. These reasons are hereby incorporated by reference. The above-discussed amendment provides even further reasons for patentability.

Applicants' previous arguments are worth repeating, since they still apply.

The Examiner concedes that Takeyama et al is silent as to the use of pigments for use in coloring artificial leather. The Examiner thus relies upon Ashida et al and Mast et al to remedy this deficiency. However, as discussed below, neither Ashida et al nor Mast et al, alone or in combination, remedy these deficiencies.

Ashida et al is relied upon by the Examiner for a disclosure of embedding pigment in fiber bundles and impregnating polyurethane into a nonwoven web of the fiber bundles.

However, in Ashida et al, the polyurethane is impregnated in the form of a solution in dimethylformamide (Example 1 and Comparative Example 1). It has been well recognized in

the art that the polyurethane solution in an organic solvent is coagulated into a porous state. Indeed, Takeyama et al, which uses a polyurethane solution containing an organic solvent in an amount of 50% or more, discloses that the polyurethane impregnated into the substrate coagulates into a porous state (column 9, lines 28-35, and column 14, lines 38-45). Thus, while Ashida et al does not disclose that the polyurethane coagulates into a porous state, since both Ashida et al and Takeyama et al use a polyurethane solution in an organic solvent, it is reasonable to presume that the coagulated polyurethane of Ashida et al is in a porous state.

Since light is diffused randomly on a porous surface, a polyurethane coagulated in a porous state is opaque. If the polyurethane film is opaque, the color development and brilliance of the suede artificial leather are reduced, as described in the specification at page 30, last four lines. In order to remove the adverse affect of an opaque polyurethane on the color development and brilliance, the recited polyurethane A in the three-dimensional entangled body is made into a transparent film by using a water dispersion --which is substantially free from organic solvent-- of the polyurethane comprising a specific diisocyanate component (aliphatic diisocyanate or alicyclic diisocyanate).

In sum, and as discussed above, Takeyama et al and Ashida et al use a polyurethane solution in an organic solvent which necessarily forms a porous and opaque coagulated polyurethane. Therefore, even if one were to combine the teachings of Takeyama et al and Ashida et al, the result would still not be the claimed invention.

Mast et al relates to a process for the bath pigmentation of already-formed leather. However, Mast et al relates to a natural leather (column 1, lines 5-7), whereas the other applied prior art relate to artificial leather. It is well-known that natural products and artificial products are quite different in pigmentation properties and other properties because of the clear difference in their constitutional substances. Therefore, one of ordinary skill in the artificial leather art would have no motivation to apply any disclosures in Mast et al.

Nevertheless, as found by the Examiner, Mast et al discloses the use of water-soluble polyurethanes for prefixation to assist in fixing the pigments into the leather, and that the substance for prefixation fixes the subsequent pigment dyeing (column 3, lines 14-19). Namely, the substance for prefixation is first introduced into leather, and then, the leather is pigmented. Clearly, the substance for prefixation and the pigment are separately introduced into the leather, thereby failing to meet the recited requirement that the pigment B be embedded in the elastomeric polymer A.

Thus, it would appear that Mast et al is irrelevant to the claimed invention.

Regarding Claims 9-12, Higuchi et al does not remedy any of the deficiencies in the combination of Takeyama et al, Ashida et al and Mast et al, since in Higuchi et al, polyurethane is impregnated into the substrate in the form of solution in an organic solvent (dimethyl formamide).

For all the above reasons, it is respectfully requested that the rejections over prior art be withdrawn.

All of the presently active claims in this application are now believed to be in immediate condition for allowance. The Examiner is respectfully requested to rejoin the non-elected method claims, and in the absence of further grounds of rejection, pass this application to issue with all pending claims.

Respectfully submitted,

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